

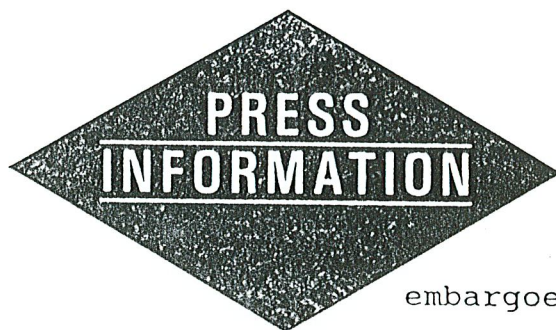
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ROLAND ON THE AMSTRAD PLUS RANGE

Roland Perry, Amstrad's favourite boffin and the man who lent his name to "Roland on the Ropes" and many other famous computer games, has played a key role in the development of the new Amstrad Plus range. Roland, who joined Amstrad in 1983, was the project leader in Amstrad's first ever computer, the CPC464, launched in the Great Hall of Westminster School in London back in April 1984.

Speaking at the press preview of Amstrad's latest range at the CNIT centre in Paris today, Roland Perry started by raising the question whether the Amstrad Plus range is special, or whether it just incorporates a few cosmetic improvements over the established CPC464 and CPC6128 machines.

Having spent the last year enmeshed in the detailed design and production details of the new range, he was able quickly to dismiss that argument when he said:

"Certainly not! What we are looking at here is a range of computers that will do to the games market in this decade what the CPC464 and the CPC6128 has done over the last six years.

"Certainly the outward design of the new 464 Plus and the 6128 Plus machines makes these computers the most attractive on the market - they are the result of considerable design effort and have researched well with young computer users in our target market. But there have also been many impressive technical improvements inside the casing.

"The Plus range builds on the strengths of our original models - general purpose home computers used in a wide range of applications such as games, word processing, education and a number of simple business functions. The very success of the old 464 and 6128 meant that there exists a vast library of software in the market and in people's homes and we wanted to make sure that investment will not be wasted. But we also want our customers to be able to take advantage of the exciting benefits which software on ROM cartridge offers.



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"Well, with the new 464 Plus and the 6128 Plus range, our customers will be able to buy two machines in one package...a computer that will run the vast library of software already available for the 464 and the 6128 models and a built-in games console that will run the latest offerings from the software houses. For those who just want to run ROM games cartridges, then our GX4000 is ready for them.

"All three machines in the new range have dedicated cartridge slots allowing our followers to take advantage of high capacity games with instant loading."

Amstrad's original games machines did not contain hardware specifically dedicated to implementing games software. In that range, 16K of RAM was organised as bit mapped graphics modes to provide 2, 4 or 16 colours from a 27 strong palette. Music and effects were produced by a three channel sound chip fed by software.

Commented Perry:

"It's obvious that if our new Plus range is to provide a better range of colour, motion and sound than you will find on the competition, then we've got to give the games programmer a bit of hardware assistance. With that in mind, we went to the top games programmers and put the question, 'What hardware features do you want to see?'. We were changing the way of doing things and were not content just to impose a machine on them but wanted to work with them to ensure that we would make the best possible machine.

"The games programmers were unanimous in saying that it is vital to relieve them of repetitive and time consuming programming; those tasks can easily be carried out by dedicated hardware. The new range has now been designed to do just that, and so I believe that we have created an 8 bit computer that gives almost the same computing power as a 16 bit model."

The new Plus models incorporate additional hardware designed to take over some of the graphics processing as well as the sound generation, giving the computer more time to manipulate the graphics.

Another important innovation in the new range, said Perry, is the complex 18,000 gate custom chip with 2 kilobytes of on-chip memory, which enables the machines to provide a number of new features.

"The new sound generator hardware can play three channels of sound from three special 'programs' in memory without CPU intervention, giving true sound/graphics multi tasking. The sound generator is fed by a dedicated DMA controller and a simple command language implements note generation, timing and repeat loops."

The additional graphics hardware has added several other new features to the machine. For instance there are 16 sprites each with 16 x 16 pixels and each sprite can be magnified by 2 or 4. The sprite size and palette are independent of the mode and palette of the main screen. So this effectively increases the maximum number of colours that can be on screen at any one time to thirty two, out of a total palette of over four thousand colours.

The sprites fully implement hardware overlapping and transparency but collision detection continues to be handled by software.

The screen can be scrolled pixel by pixel both vertically and horizontally giving a smooth, effortless panning of the games action.

"This is a marked improvement on the original CPC models", said Perry, "when scrolling was only possible in character sized steps or else the entire 16K of video RAM had to be rewritten by the software.

"We've also developed a programmable scan line interrupt which can be used to alter the palette, mode or sprite information midway through displaying a frame and creates the illusion of more colours, more sprites and even a split mode screen."

The Plus range incorporates a further refinement which provides a hardware split screen with each section of the screen derived from different video RAM blocks.

The sum of these features means that complex games like "Burnin' Rubber" can now be run, with video and sound effects far more sophisticated than on other 8-bit machines.

The English, Italian and Spanish GX4000 games consoles incorporate a specially modified main crystal clock frequency ensuring a high quality picture when linked via the product's inbuilt modulator to a normal TV set. All units also include a Peritel/Scart socket for French and other TV systems.

"And the picture quality of the monitors supplied with the 464 Plus and the 6128 Plus has also been upgraded, as has the sound reproduction", Perry continued.

"We have radically redesigned the monitors and now offer a 12" paper white mono or a 14" colour unit, both of which have inbuilt stereo speakers, which greatly enhance the sound capability of the system.

"All models feature an analogue joystick port and now two digital joystick or paddle controller ports. All three machines will be supplied with a sample game, "Burnin' Rubber" on ROM cartridge. The same cartridge will include the original Amstrad 'BASIC' and firmware when supplied with 464 Plus or 6128 Plus machines. The 6128 Plus also comes with Digital Research's CP/M Plus on disc. All in all, the new range is a remarkable technical package at a remarkable price."

See technical specification attached

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	<u>GX4000</u>	<u>464 Plus</u>	<u>6128 Plus</u>
Processor	Z80A	Z80A	Z80A
Memory	64K	64K	128K
Configuration	ROM Cart	Cassette & ROM Cart	3" disc & ROM Cart
Colours	32 from 4096	32 from 4096	32 from 4096
Softscroll	Yes	Yes	Yes
Splitscreen	Yes	Yes	Yes
Sprites	16	16	16
Sound	Stereo ASG	Stereo ASG	Stereo ASG
Joystick ports			
digital	x2	x2	x2
analogue	x1	x1	x1
Video Output	RGB Sync Composite In-built Modulator (UK, Sp, It versions only) Peritel/Scart Socket	RGB Sync Composite	RGB Sync Composite
Monitors	12" b/w Mono 14" Colour	12" b/w Mono 14" Colour	12" b/w Mono 14" Colour